



Mill and General Buildings, Pepeekeo Sugar Company, Island of Hawaii

of automatic juice strainers, one 5, one 8 and one 18-ton vacuum pans, eight mud presses, Quadruple effect, Deming apparatus, twelve 30-inch centrifugals driven by a special engine, etc. Eighteen years ago the original vacuum pan was only five tons capacity, whereas now there is a combined capacity in the three pans of thirty-four tons.

Water for mill purposes is obtained by pumping from a well 227 feet in depth to sea level. A new steel sugar building has been erected by Milliken Brothers of New York while a 150 light General Electric plant has been installed, driven by a Westinghouse engine operated by steam power.

On the sacking floor are eight independent sack loaders, one for each centrifugal, where the Nos. 2 and 3 grades of sugar manufactured are handled separately. The mill shows an average extraction of 92 per cent, which is about the average of the district. The residue or cane trash from the mill is fed by an endless carrier to the fire room and fed automatically into the furnaces. A short distance from the mill is a Brush cooler, used for the purpose of cooling the condensation water used by the vacuum pans and Lillie standard effects.

The landing for the shipment of sugar by steam and sailing vessels is located in a very secluded place, it being possible owing to a projecting point or bluff for the vessels to anchor directly under the large swinging crane on the landing, and discharge freight and take on sugar directly into the hold. The sugar is conveyed from the mill to the landing over a mile of railroad by gravity. Arriving at the bluff above the landing the sugar is lowered over an incline tramway to the landing below, the loads of sugar being controlled in their descent by a cable and steam hoist. The warehouses at the landing have a capacity for storing 15,000 bags of sugar, if necessary, which includes the space in the sugar room at the mill.

The projected output of sugar for the season of 1901 is 7000 tons, or 14,000,000 pounds of sugar.

The company, through its manager, has in course of completion twenty-four cottages for the accommodation of the Porto Rican laborers, erected at a cost of nearly \$5000. Connected with the plantation is a hospital and dispensary, while a school house has been erected on the lands. The company operates its own general store, in which are carried general plantation supplies.

A. Lydgate, manager of this plantation, has been identified with the sugar industry on the islands since 1876, his father, Mr. Lydgate, being the originator and starter of the Laupahoehoe plantation, and he has been manager of the Hamakua Mill Company for fifteen years, it being a limited corporation.

Following is the list of officers:

F. M. Swanzy, President.
Charles Notley, Vice President.
W. H. Baird, Treasurer.
G. F. Davies, Secretary.

Pepeekeo Sugar Company

The property of the Pepeekeo Sugar Company lies on the windward side of Hawaii, between Hilo and Honokaa, and comprises between 10,000 and 11,000 acres, all held in fee simple with the exception of three small leases. The plantation was formerly known as the Kaupakua and owned by Mr. Afong of Honolulu, and was purchased and incorporated by Alexander Young of Honolulu in 1889 as the Pepeekeo Sugar Company. Some 3500 acres are at present planted in cane, the principal varieties being the Lahaina, Rose Bamboo, and Yellow Caledonia.

The cane is handled to the mill through fifteen miles of stationary flumes, besides the ordinary supply of portable V flumes, while the water necessary to flume the cane is obtained from the gulches and streams upon the land. The plantation has an ocean frontage of three miles and extends back to the forest lands a distance of four miles, while one portion of the land extends back for a distance of thirteen miles. The company plants about 1000 acres each year, and has about 700 to 800 acres of ratoon. The average age of cane when ready to be cut is from eighteen to twenty months. The cane is ratooned but once. While the plant cane will average five tons to the acre,

the rattoons will run about three tons for the same area. The entire cane will average three and one-half tons to the acre.

In the cultivation of the cane several methods are adopted, such as the company furnishing the land free of rent to the laborers, who care for the land from planting to maturity, and receive so much per ton of cane raised, while other contracts are made for cutting and also stripping the cane, which is done three times a year. Some five miles of good roads have been constructed upon the property in order to reach the various fields, at convenient points, with seed, fertilizer, etc.

The company owns a fine modern rock crusher. Between 600 and 700 men are employed upon the plantation, which includes contractors and company men.

Upon the place are 100 head of California mules and fifty pack animals. The laborers employed upon the plantation are furnished with their dwellings, wood and medical attendance free of charge, while a suitable hospital building has been erected. The company maintains two stores for the convenience of the help employed, one being located at the mill site and the other on the Government road one and one-fourth miles from the mill.

The cane is conveyed direct from the fields by portable V flumes to the main flumes, from whence it is transported to the mill and dropped directly onto an endless carrier and fed to a Krajewski crusher, and from thence to two 3-roller mills, while the residue or trash from the mill goes direct to the furnace room by an endless carrier.

The mill contains modern mechanical appliances for the manufacture of raw sugar, such as vacuum pans, centrifugals, mud presses, etc. The mill is operated by steam power, while the water used for fluming the cane to the mill is picked up and again utilized for the purpose of driving the machine shop, drying machines and operating the electrical generator for electric lighting purposes.

The capacity of the mill in twenty-four hours is from fifty-five to sixty tons of raw sugar or 7000 tons a year per mill season of six months. According to the chemist's report, the mill extraction is 93 per cent, the remainder being in the mud cake, a large percentage of which is saved in the mud presses.

The sugar when sacked is conveyed direct from the sugar room to the warehouse at the shipping point, and shipped aboard the steamer by a cable system connected with the vessel, which system is operated by steam power, and enables the placing on board of 900 bags an hour.

Mr. Henry Deacon, who is manager of this plantation, has been in Hawaii for twenty-one years, and for a period of eleven years was connected with the Waialae Mill Company, near Hilo. Mr. Deacon is interested in several local Hilo enterprises, and in 1887-1888 represented the Hilo district of Hawaii as a member of the Reform Legislature.

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Laupahoehoe Sugar Co., Ltd

Like other plantations in the Hilo district, the above company occupies an important position. The total area of the company's land is 4500 acres, of which acreage about 3800 are planted to the Rose Bamboo and Lahaina varieties of cane, and also some Yellow Caledonia, which looks well. About twelve miles of main and lateral V flumes have been constructed, through which the cane is conveyed to the mill, which is operated by steam and water power, and having a capacity for turning out forty-five tons of sugar in twenty-four hours. It is a 7-roller mill and is properly equipped to handle the product successfully. During the year 1900 the average yield of sugar to the acre was three and one-half tons, the actual output being 4700 tons, or 9,400,000 pounds of raw sugar. The soil generally is of a dark-red nature and the area of the land extends along the sea coast for a distance of five miles and back with a general rise to the foothills or uplands for a distance of one and one-half miles.

The first cane planted here was in 1877, and the mill was erected in 1883. Some 500 men are employed in the cane fields and about the main works, while 180 head of stock are found necessary in plowing and general work.

Upon this plantation a great deal of the cane is raised on lands leased to homesteaders, particularly all lands on the Hilo side of Mauna Loa gulch, inducements being thrown out for homesteaders to cultivate small areas of homestead land. For the 1901 crop some 2300 acres of cane comes off.

The land under cultivation, including this season's cane, is 4200 acres, of which some 800 acres were planted this year.

The mill contains many modern appliances for the manufacture of sugar, while the company maintains its own stores, etc.

Colin McLennan is manager of the property and has resided on Hawaii for twelve years and has always been identified with sugar.

Theo. H. Davies & Co. of Honolulu are the local agents.

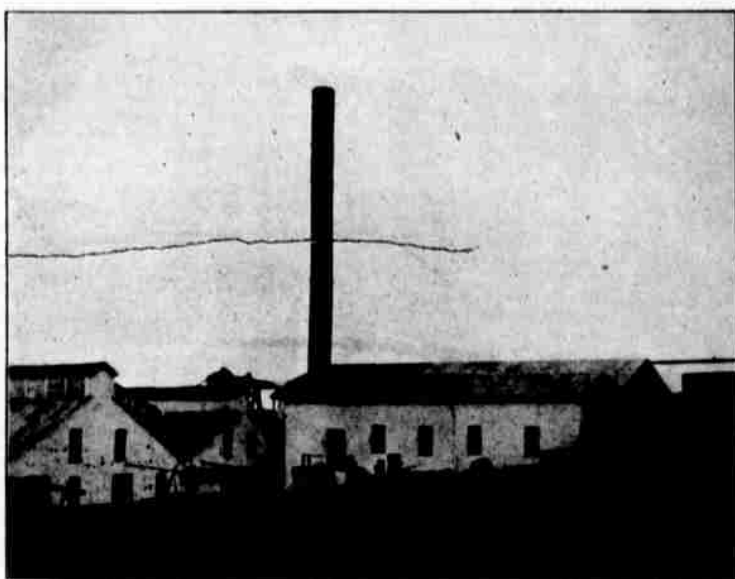
fit for the successful growth of sugar cane. In addition to the above area there are 300 acres of leased land and 400 acres of forest. The total available cane lands are 1726 acres, of which area 950 acres are growing cane and 350 acres prepared for planting.

The principal variety of cane grown is the Rose Bamboo, in addition to which there are some yellow Bamboo or "Wadney" cane, Stripped Singapore and several other foreign varieties. For the grinding season of 1901, covering a period of eight months, the product sent to the mill will be 334 acres of plant and 365 acres of ratoon, and the total amount of sugar from this area will be 1800 tons. Owing to the dry weather which prevailed in the Kohala district during the months of May and June, the crop for 1902 has received quite a set-back and may not yield more than 1200 tons for the season's run.

The method of conveying cane to the mill is by the aid of V flumes, and where the product is close to the mill it is handled by wagons direct. The length of the main V flume is one and one-half miles, while the lateral or portable field flumes will aggregate two miles in length. Water for the flumes is obtained out of the gulches on the land of which there are five, these gulches at times being torrential streams, and then again becoming quite low in water. At the present time some 232 contractors and day laborers are employed in and about the plantation. In the case of contract work, which is largely in use, the company plow, fertilize and plant the land, after which the contractors undertake to do the hoeing, cutting and delivering of the cane into the flumes or on wagons, for which they receive so much per ton of sugar produced from the lands under their charge.

At the above plantation is the terminus of the Hawaiian Railway Company, over which line is handled all sugar out and all freight in from Mahukona, the shipping point for the Mainland and elsewhere.

A 9-roller mill has been erected upon the property, having a nominal capacity of only thirty-four tons of sugar in twenty-four



General View Mill Plant of Ooala Sugar Company, Island of Hawaii

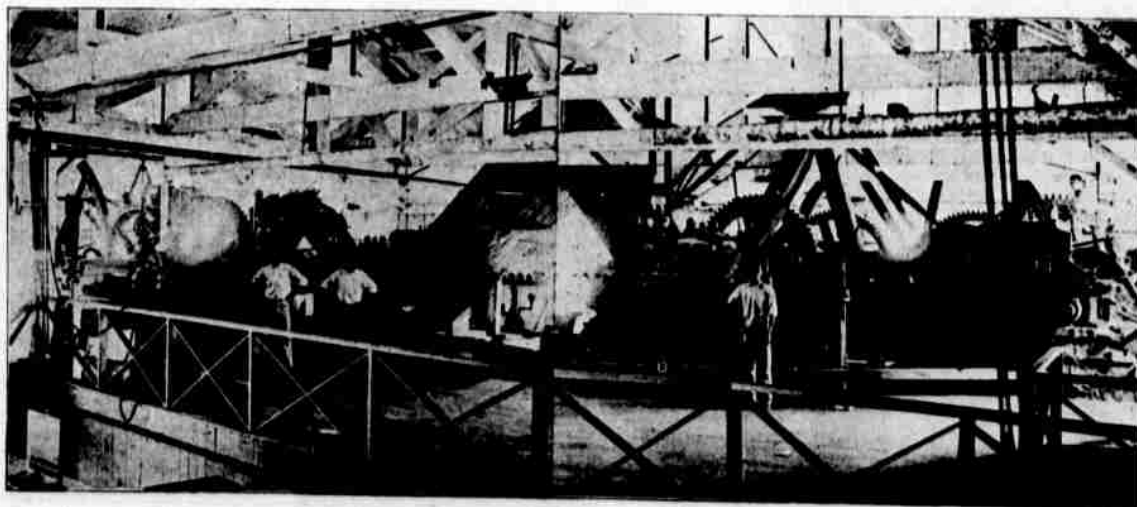
Niuli Plantation and Mill

On the east end, and in the Kohala district, are the holdings of the Niuli Plantation and Mill, where, in 1876, was planted the first crop of cane, which was taken off and milled in 1878. The plantation was started by Charles F. Hart and Godfrey Rhodes with about twelve native planters planting cane of the Lahaina and native variety. The first crop taken off was only sixty acres, the acreage being gradually extended until the second crop, in 1879, had reached 200 acres.

The work went on with the natives, until such times as they elected to sell out their interests to C. F. Hart, which was done, he having in the meantime absorbed the interest of his half-brother, Godfrey Rhodes. The property comprises in fee simple 3220 acres, out of which there are 1800 acres of forest and gulch lands, the latter being 12

hours, due to the rollers being much smaller than those in other 9 roller mills. The cane is fed from the flumes, when water is to be had, direct to the cane carrier, and from thence to a Smith cane cutter, and then on through the mill, which was erected by the Fulton Iron Works of St. Louis, although much of the machinery was supplied by the Honolulu Iron Works of Honolulu. The mill is supplied with such appliances as are necessary for the manufacture of raw sugar, such as a system of clarification, triple-effects, one 2½ and one 3½-ton vacuum pans, six 30-inch centrifugals, automatic juice strainers, three mud presses, etc.

Water for maceration purposes is produced by condensation in the steam drum of the triple-effects. Four grades of sugar are manufactured, but only Nos. 1 and 2 grades are shipped, the Nos. 3 and 4 grades being returned to the pans and remelted and made into Nos. 1 and 2 qualities. According to the statement of the manager the mill extraction is about 80 per cent of weight



INTERIOR VIEW OF NIULI SUGAR MILL AND PLANTATION COMPANY, KOHALA DISTRICT, HAWAII